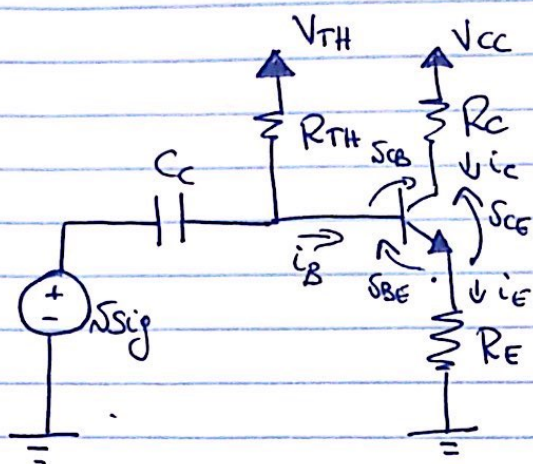
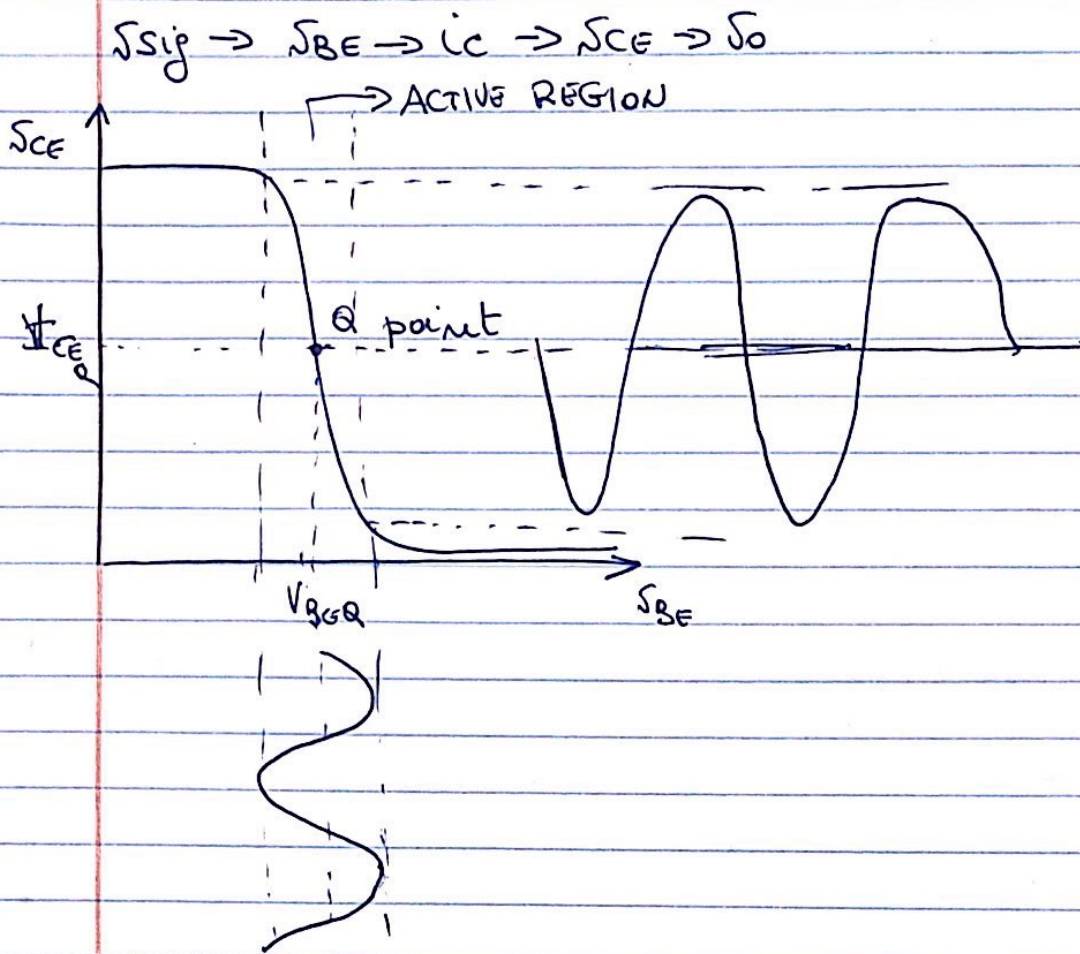


Lecture 12 - Notes



12



$$A_s = \left. \frac{ds_{CE}}{ds_{BE}} \right|_{s_{BE}=V_{BE}}$$

$$s_{CE} = V_{CC} - (R_C + R_E) i_c = V_{CC} - (R_C + R_E) I_{S,e}^{V_{BE}/V_T}$$

$$A_s = - \frac{R_C + R_E}{V_T} \cdot I_{S,e}^{V_{BE}/V_T} = - \frac{R_C + R_E}{V_T} \cdot I_{CQ} = - \frac{V_{RC} + V_{RE}}{V_T}$$

$$V_{RC} = V_{CC} - V_{TH} + R_{TH} I_B - V_{CB}$$

① $V_{TH} \uparrow \Rightarrow V_{RC} \downarrow \Rightarrow A_s \downarrow, V_C \uparrow \Rightarrow s_{CE} \uparrow$ (Assuming a fixed V_{RE}).

(3)

$\Delta V \downarrow \times$

$V_{CE} \uparrow \times$ (Limits the signal swing as the Q point gets close to the cut-off region).

② $V_{TH} \downarrow$ Q point must be against junction of the $V_{DS(on)}$

$V_{TH} \downarrow$ $V_{RC} \uparrow$ $\Delta V \uparrow \checkmark$

$V_{RC} \uparrow$ $V_C \downarrow$ $V_{CE} \downarrow$ (Limits the signal swing as the Q point gets close to the saturation region)